SPECTRUM®

FRX4000 and FRX6000
Management Module Guide

CABLETRON SYSTEMS

The Complete Networking Solution™

Notice

Cabletron Systems reserves the right to make changes in specifications and other information contained in this document without prior notice. The reader should in all cases consult Cabletron Systems to determine whether any such changes have been made.

The hardware, firmware, or software described in this manual is subject to change without notice.

IN NO EVENT SHALL CABLETRON SYSTEMS BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOST PROFITS) ARISING OUT OF OR RELATED TO THIS MANUAL OR THE INFORMATION CONTAINED IN IT, EVEN IF CABLETRON SYSTEMS HAS BEEN ADVISED OF, KNOWN, OR SHOULD HAVE KNOWN, THE POSSIBILITY OF SUCH DAMAGES.

Virus Disclaimer

Cabletron has tested its software with current virus checking technologies. However, because no anti-virus system is 100% reliable, we strongly caution you to write protect and then verify that the Licensed Software, prior to installing it, is virus-free with an anti-virus system in which you have confidence.

Cabletron Systems makes no representations or warranties to the effect that the Licensed Software is virus-free.

Copyright © February, 1998 by Cabletron Systems, Inc. All rights reserved.

Printed in the United States of America.

Order Number: 9032285 E1

Cabletron Systems, Inc.
P.O. Box 5005
Rochester, NH 03866-5005

SPECTRUM, **SPECTRUM IMT/VNM** logo, **DCM**, **IMT** and **VNM** are registered trademarks, and **SpectroGRAPH**, **SpectroSERVER**, **Device Communications Manager, Inductive Modeling Technology**, and **Virtual Network Machine** are trademarks of Cabletron Systems, Inc.

Ethernet is a trademark of Xerox Corporation.

Restricted Rights Notice

(Applicable to licenses to the United States Government only.)

1. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013.

   Cabletron Systems, Inc., 35 Industrial Way, Rochester, New Hampshire 03866-0505.

2. (a) This computer software is submitted with restricted rights. It may not be used, reproduced, or disclosed by the Government except as provided in paragraph (b) of this Notice or as otherwise expressly stated in the contract.

   (b) This computer software may be:

   (1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any Government installation to which such computer or computers may be transferred;

   (2) Used or copied for use in a backup computer if any computer for which it was acquired is inoperative;

   (3) Reproduced for safekeeping (archives) or backup purposes;

   (4) Modified, adapted, or combined with other computer software, provided that the modified, combined, or adapted portions of the derivative software incorporating restricted computer software are made subject to the same restricted rights;

   (5) Disclosed to and reproduced for use by support service contractors in accordance with subparagraphs (b) (1) through (4) of this clause, provided the Government makes such disclosure or reproduction subject to these restricted rights; and

   (6) Used or copied for use in or transferred to a replacement computer.

   (c) Notwithstanding the foregoing, if this computer software is published copyrighted computer software, it is licensed to the Government, without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause.

   (d) Any other rights or limitations regarding the use, duplication, or disclosure of this computer software are to be expressly stated in, or incorporated in, the contract.

   (e) This Notice shall be marked on any reproduction of this computer software, in whole or in part.

Contents

Preface

What Is in This Guide ix
Conventions x
Related SPECTRUM Documentation x
Other Related Documentation xi

Chapter 1 Introduction

What Is in This Chapter 1-1
FRX4000 and FRX6000 Devices 1-1
SPECTRUM Support 1-2
    Accessing SPECTRUM Views from the Device Icon 1-2
    Accessing Device-Specific Subviews 1-4
    Using Standard Table Buttons 1-5
Roadmap of SPECTRUM Views 1-6
SPMA Support 1-6

Chapter 2 Device View

What Is in This Chapter 2-1
Interface Device View 2-1
    Interface Options Panel 2-3
        Interface Description Map 2-4
        Gauge Control Panel 2-4
    Interface Icon 2-8
        Interface Label 2-9
        Interface Type Label 2-9
        MAC Address Label 2-9
        Gauge Label 2-10

Chapter 3 Configuration Views

What Is in This Chapter 3-1
Device Configuration View 3-2
    Device Configuration Information 3-2
    Interface Configuration Table 3-3
Interface Configuration View 3-4

Chapter 4 Event and Alarm Messages

What Is in This Chapter 4-1
FRX4000 and FRX6000 Events and Alarms 4-1

Chapter 5 Application View

What Is in This Chapter 5-1
Common Applications 5-1
Device Application View 5-2
Netlink Application 5-5
Netlink RLP ConfigurationView 5-5
Netlink Trap Address Table 5-6

Index

Figures

Chapter 1 Introduction

Figure 1-1. Using Double-Click Zones to Access SPECTRUM Views 1-3
Figure 1-2. Accessing Icon Subviews Menus from the Device Icon 1-4
Figure 1-3. Accessing Icon Subviews Menus from Labels 1-4
Figure 1-4. SPECTRUM Views Roadmap 1-5

Chapter 2 Device View

Figure 2-1. Interface Device View 2-2
Figure 2-2. Gauge Control Panel 2-5
Figure 2-3. Interface Icon 2-8

Chapter 5 Application View

Figure 5-1. Device Application View (Icon Mode) 5-3
Figure 5-2. Device Application View (List Mode) 5-4

Tables

Chapter 2 Device View

Table 2-1. Interface Options Panel Icon Subviews Menu 2-3
Table 2-2. Rates Gauge Mode: Attributes and Corresponding Colors 2-6
Table 2-3. Totals Gauge Mode: Attributes and Corresponding Colors..... 2-6

Chapter 4 Event and Alarm Messages

Table 4-1. ELS10 Events and Alarms 4-1

Preface

Use this guide as a reference for the SPECTRUM FRX4000 and FRX6000 management software. Before reading this guide, you should be familiar with SPECTRUM's functions and navigational techniques. Also become familiar with any network management and hardware requirements described in the related hardware documentation.

For the purposes of this guide, the FRX4000 and FRX6000 are referred to as "device."

What Is in This Guide

The following chapter descriptions outline the organization of the ***FRX4000 and FRX6000 Management Module Guide***:

Chapter	Description
Chapter 1 *Introduction*	Describes the device, management module software, and the model types.
Chapter 2 *Device View*	Describes the Device views representing this device.
Chapter 3 *Configuration Views*	Describes the Configuration views for the device and the network information provided by the views.
Chapter 4 *Event and Alarm Messages*	Lists and explains the alarm and event messages generated in the Event Log or Alarm Manager for the device model type.
Chapter 5 *Application View*	Describes the Application view and the application specific information for the device.

Conventions

This guide uses the following conventions:

- Menu selections and buttons referenced in text are printed in **bold**; for example, **Configuration** or **Detail**.
- Buttons names appear in shadowed boxes when introducing paragraphs describing their use; for example:

Help

- Menu navigation appears in order of selection; for example, **Icon Subviews -> Utilities -> Application**.
- Referenced chapter titles and section headings appear in *italics*.
- Referenced documents appear in ***bold italics***.
- The FRX4000 and FRX6000 are referred to as “device.”

Related SPECTRUM Documentation

Refer to the following documentation for more information on using SPECTRUM:

Report Generator User’s Guide

Getting Started with SPECTRUM for Operators

Getting Started with SPECTRUM for Administators

How to Manage Your Network with SPECTRUM

Other Related Documentation

Refer to the following documentation for more information on managing TCP/IP-based networks:

Martin, James, Kathleen Kavanagh Chapman, and Joe Leben. ***Local Area Networks: Architectures and Implementations***, 2d ed. Englewood Cliffs, NH: Prentice-Hall, 1994.

Miller, Mark. ***LAN Troubleshooting Handbook***, M&T Publishing, Inc., 1989.

Rose, Marshall T. ***The Simple Book: An Introduction to Management of TCP/IP-based Internets***, Englewood Cliffs, NJ: Prentice-Hall, 1991.

Tannenbaum, Andrew S. ***Computer Networks***, 3d ed. Englewood Cliffs, NJ: Prentice-Hall, 1994.

Chapter 1

Introduction

What Is in This Chapter

This chapter introduces the SPECTRUM Management Modules for the FRX4000 and FRX6000 Netlink Frame Relay devices. It describes the following:

- *FRX4000 and FRX6000 Devices*
- *SPECTRUM Model Types*
- *Accessing SPECTRUM Views*
- *Roadmap of SPECTRUM Views*
- *SPMA Support*

FRX4000 and FRX6000 Devices

The FRX4000 and FRX6000 Netlink Frame Relay devices provide access to remote devices. The FRX4000 is used where eight serial interfaces or fewer are required. The FRX6000 supports up to sixty-four serial interfaces and can function as a central-site device for remote FRX4000's.

SPECTRUM Model Types

The model type refers to the management module software package used to specify attributes, actions, and associations for the physical device using the Simple Network Management Protocol (SNMP) and Management Information Bases (MIBs). The model types for the FRX4000 and FRX6000 Netlink Frame Relay devices are:

- FRX4000
- FRX6000

Accessing SPECTRUM Views

The Device icon provides access to SPECTRUM views that display device-specific information. Access these views through double-click zones (Figure 1-1) and Icon Subviews menus (Figure 1-2 and Figure 1-3).

To access the Icon Subviews menu, do the following:

1. Highlight the icon or label.
2. From the View menu, select **Icon Subviews**, or click and hold the applicable mouse button (middle or right) over the icon or label. Refer to the ***SPECTRUM Views*** for information on configuring your mouse.

Figure 1-1. Using Double-Click Zones to Access SPECTRUM Views

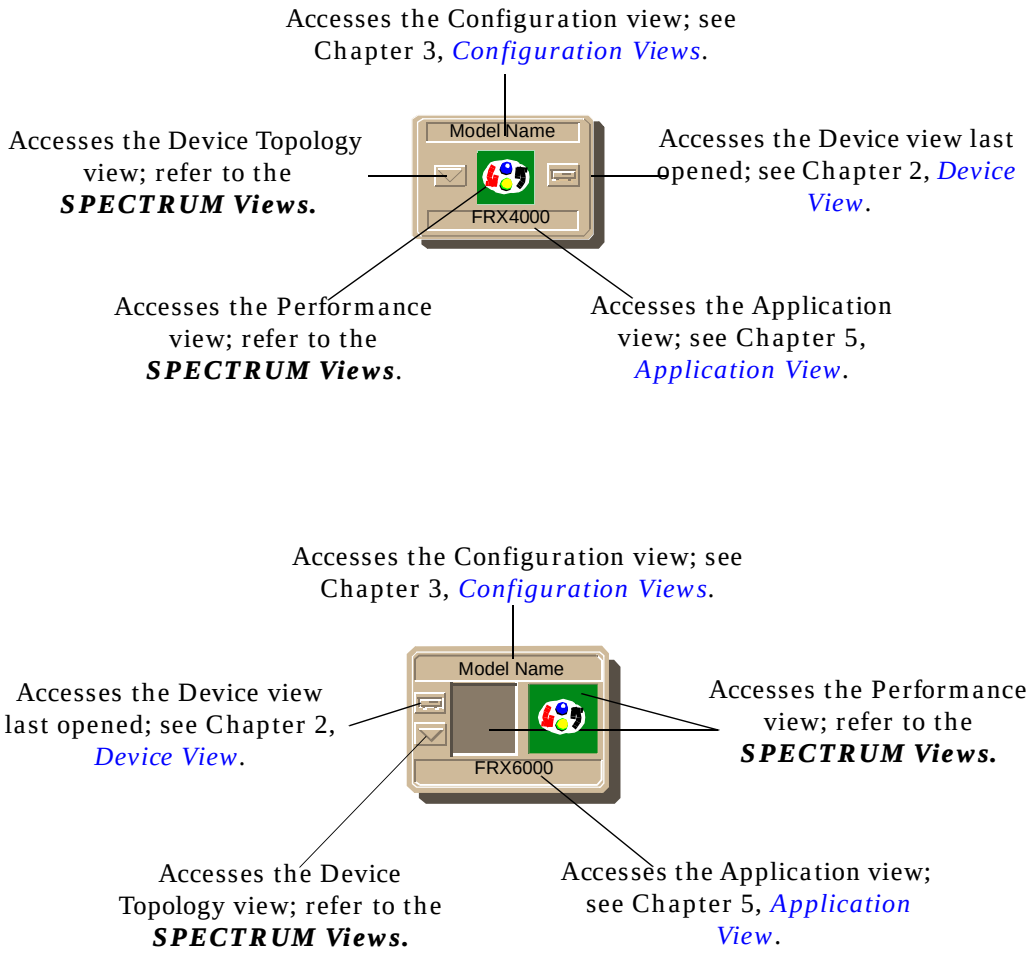

Accesses the Configuration view; see Chapter 3, Configuration Views.
Accesses the Device Topology view; refer to the SPECTRUM Views.
Model Name
FRX4000
Accesses the Device view last opened; see Chapter 2, Device View.
Accesses the Performance view; refer to the SPECTRUM Views.
Accesses the Application view; see Chapter 5, Application View.
Accesses the Configuration view; see Chapter 3, Configuration Views.
Accesses the Device view last opened; see Chapter 2, Device View.
Model Name
FRX6000
Accesses the Performance view; refer to the SPECTRUM Views.
Accesses the Device Topology view; refer to the SPECTRUM Views.
Accesses the Application view; see Chapter 5, Application View.

Figure 1-2. Accessing Icon Subviews Menus from the Device Icon

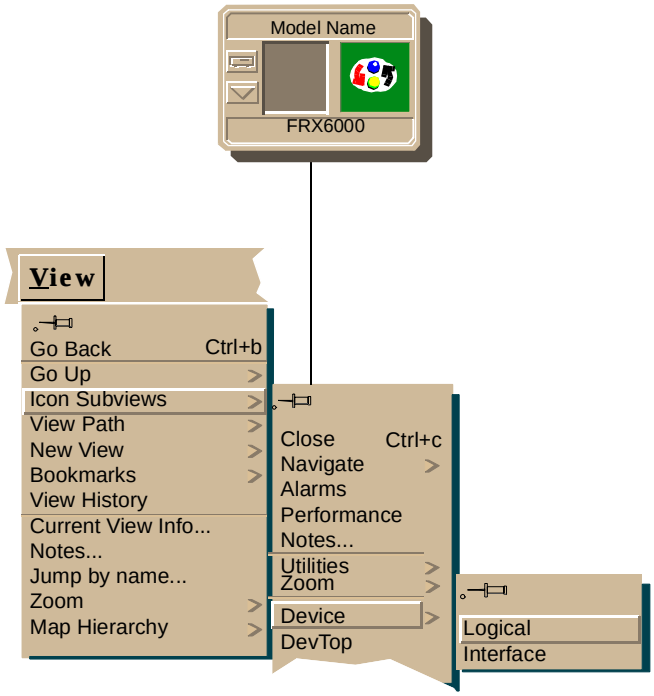
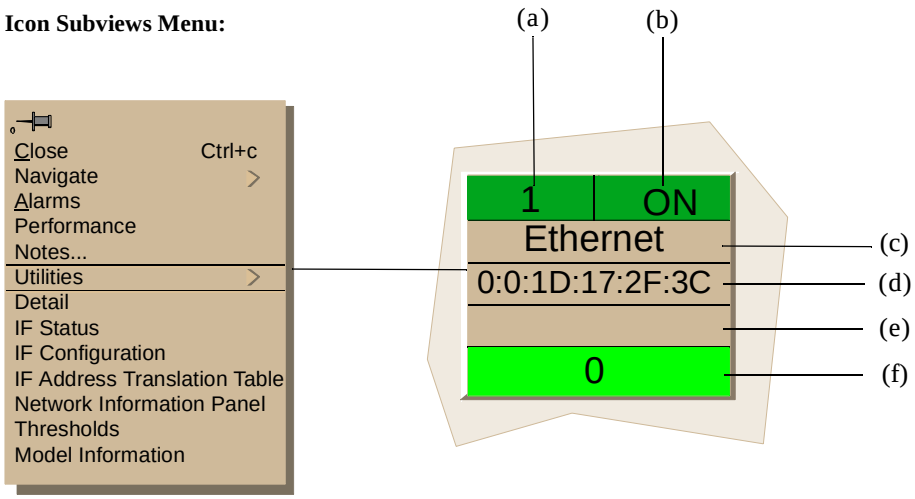


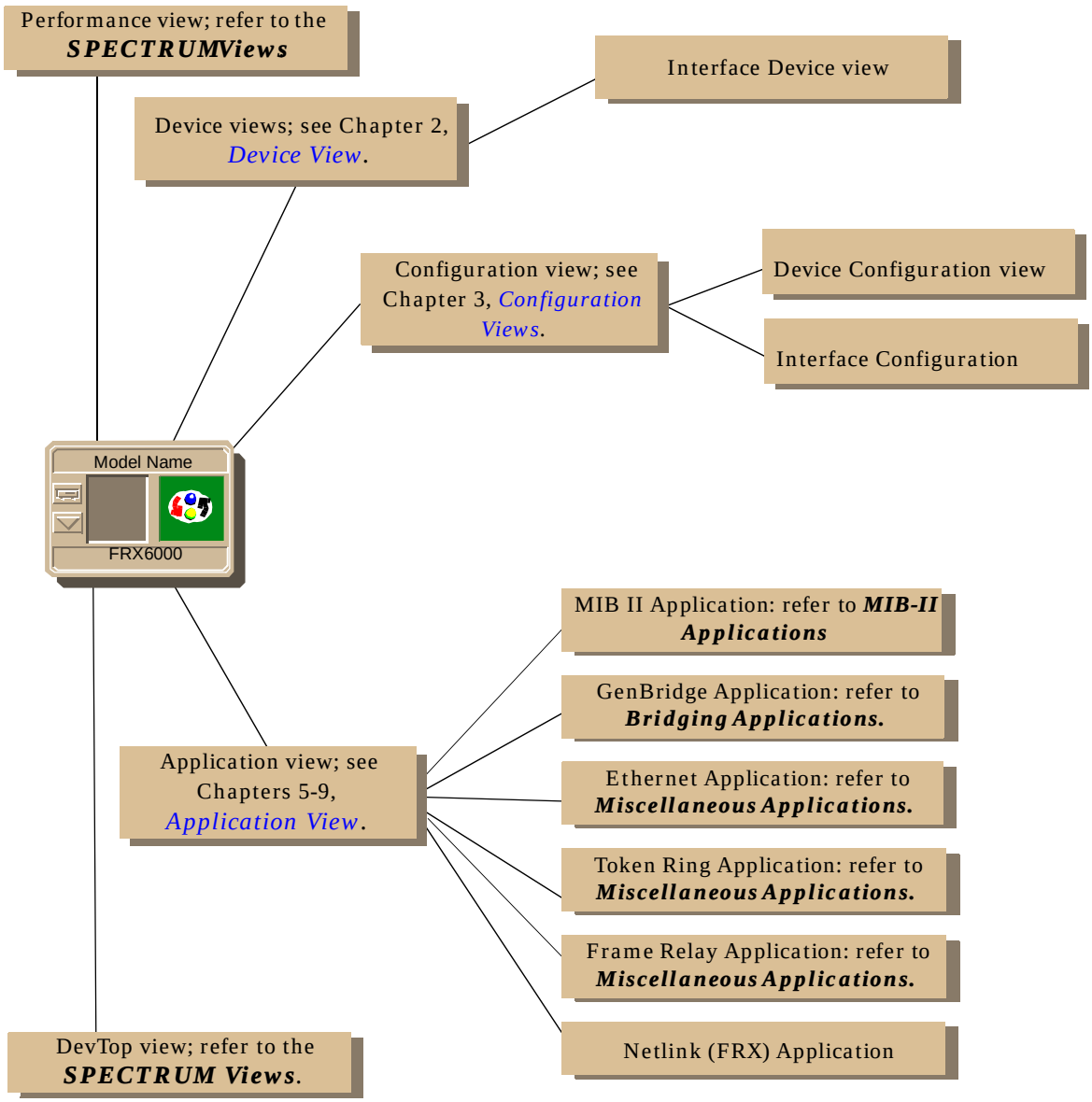
Figure 1-3. Accessing Icon Subviews Menus from Labels



Roadmap of SPECTRUM Views

Figure 1-4 shows a "roadmap" of the SPECTRUM views for this device. These views are accessible from double-click zones (Figure 1-1) and Icon Subviews menus (Figure 1-2 and Figure 1-3).

Figure 1-4. SPECTRUM Views Roadmap


Performance view; refer to the SPECTRUMViews
Interface Device view
Device views; see Chapter 2, Device View.
Configuration view; see Chapter 3, Configuration Views.
Device Configuration view
Interface Configuration
Model Name
FRX6000
MIB II Application: refer to MIB-II Applications
GenBridge Application: refer to Bridging Applications.
Application view; see Chapters 5-9, Application View.
Ethernet Application: refer to Miscellaneous Applications.
Token Ring Application: refer to Miscellaneous Applications.
Frame Relay Application: refer to Miscellaneous Applications.
Netlink (FRX) Application
DevTop view; refer to the SPECTRUM Views.

SPMA Support

SPECTRUM also supports the SPECTRUM Portable Management Application (SPMA) functionality for the device. To open the SPMA Application view from any SPECTRUM view, do the following:

1. Highlight the Device icon.
2. From the View menu, select **Icon Subviews** -> **Utilities** -> **Application**.

The SPMA views are described in the ***SPECTRUM Portable Management Application Tools Guide***.

Chapter 2

Device View

What Is in This Chapter

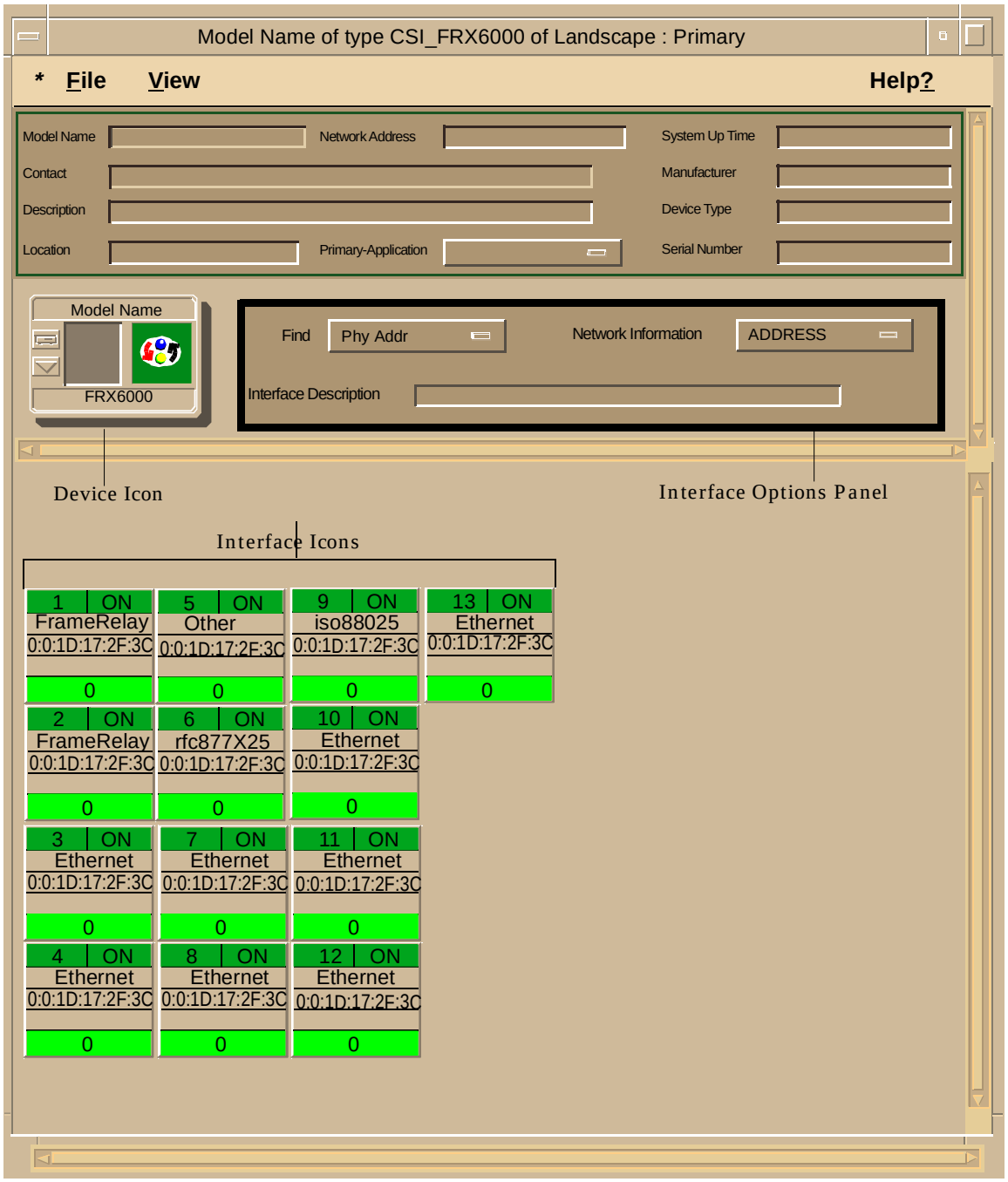
This chapter describes the following Interface Device view and its subviews available for the FRX4000 and FRX6000 Netlink Frame Relay devices.

See Chapter 1, *Introduction*, for information on *Accessing SPECTRUM Views*.

Interface Device View

This view provides dynamic configuration and performance information for each interface on this device. If the configuration changes, SPECTRUM modifies the Device view after the next polling cycle to reflect the new configuration. This view also provides a Device icon which allows you to monitor the device operation and access other device-specific views. Figure 2-1 shows an example of the Interface Device view.

Figure 2-1. Interface Device View



Interface Options Panel

This area of the Interface Device view (Figure 2-1) allows you to modify the presentation of the highlighted Interface icon. Double-click the background (a non-text area) of this panel to open the *Gauge Control Panel*, described on Page 2-4. Table 2-1 lists the Icon Subviews menu selections available for this panel

Table 2-1. Interface Options Panel Icon Subviews Menu

Menu Selection	Description
Inf Description Map	Opens the *Interface Description Map* described on Page 2-4.
Gauge Control Panel	Opens the *Gauge Control Panel* described on Page 2-4.

The Interface Options Panel provides the following information:

Find
Allows you to quickly locate a specific interface by selecting one of the following search categories as follows:

- Phy Addr
- IP Address
- Type
- Net Name

1. Double-click a category. This opens a dialog box.
2. Enter the interface to be found.
3. Click **OK** . The corresponding area of the relevant icon or icons becomes highlighted.

Network Information
Allows you to select the kind of information displayed in the Network Information Label of the highlighted icon. Possible selections are ADDRESS, NAME, or MASK.

Interface Description
Describes the highlighted interface. If no interface is highlighted, this field is empty. Double-click this field to access the Interface Description Map view described below.

Interface Description Map

This view provides a table mapping the interface index number to the description of the interface. To access this view, double-click the Interface Description field on the Interface Options Panel or do the following:

1. Highlight the Interface Options panel.
2. From the View menu, select **Icon Subviews -> Inf Description Map**.

The Interface Description Map table provides the following information:

Index
Displays the number corresponding to the port's interface.

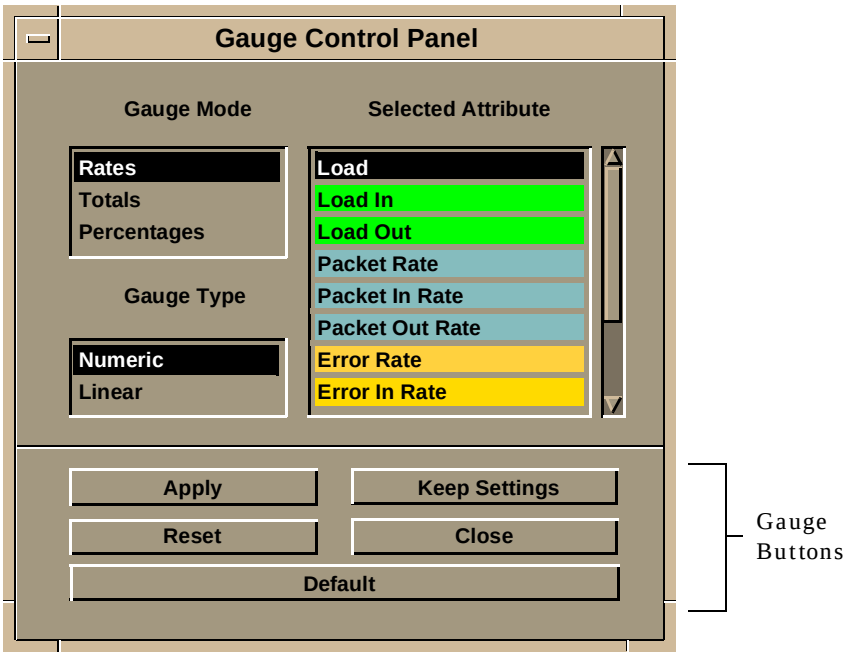
Description
Displays a description of the interface; for example, Ethernet/802.3 T.

Gauge Control Panel

This panel (Figure 2-2) allows you to change the type of statistical information displayed on the Gauge label of the Interface icon. To access the Gauge Control Panel, double-click the background (a non-text area) of the Interface Options panel or do the following:

1. Highlight the Interface Options panel.
2. From the View menu, select **Icon Subviews -> Gauge Control Pane**l.

Figure 2-2. Gauge Control Panel



The Gauge Control Panel provides the following information:

- Gauge Mode
- Selected Attribute
- Gauge Type
- Gauge Buttons

Gauge Mode

This area allows you to select the mode presented by the Logical Gauge. Possible selections are Totals, Rates, or Percentages. The Percentages selection presents the percentage of the interface compared to the rest of the interfaces.

The color displayed on the Gauge Label (Figure 2-3) depends upon the particular mode and statistical attribute selected. Table 2-2 provides a list of attributes and color definitions for the Rates mode. Table 2-3 provides a list of attributes and color definitions for the Totals mode.

Table 2-2. Rates Gauge Mode: Attributes and Corresponding Colors

Selected Attribute	Color
Load	Green
Load In	Green
Load Out	Green
Packet Rate	Blue
Packet In Rate	Blue
Packet Out Rate	Blue
Error Rate	Orange
Error In Rate	Orange
Error Out Rate	Orange
Discard Rate	Tan
Discard In Rate	Tan
Discard Out Rate	Tan

Table 2-3. Totals Gauge Mode: Attributes and Corresponding Colors

Selected Attribute	Color
In Errors	Orange
Out Errors	Orange
In Packets	Blue
Out Packets	Blue
Unknown Protocols	Yellow
In No Resource	Tan
Out No Resource	Tan
In Octets	Green
Out Octets	Green

Selected Attribute
This area of the Gauge Control Panel allows you to select the statistical attribute displayed on the Interface icon's Gauge label. The label changes color to reflect the attribute selected.

Gauge Type
This option allows you to select either a numeric or linear display on the Gauge label.

Gauge Buttons
This area of the Gauge Control Panel provides the following buttons:

Apply
Applies the current settings to the Gauge label temporarily but does not save the settings.

Keep Settings
Saves the current settings while running SpectroGRAPH. The settings return to default when you restart SpectroGRAPH.

Reset
Returns the settings to the previously saved values.

Close
Closes the Gauge Control Panel.

Default
Resets the settings to the SPECTRUM default.

Interface Icon

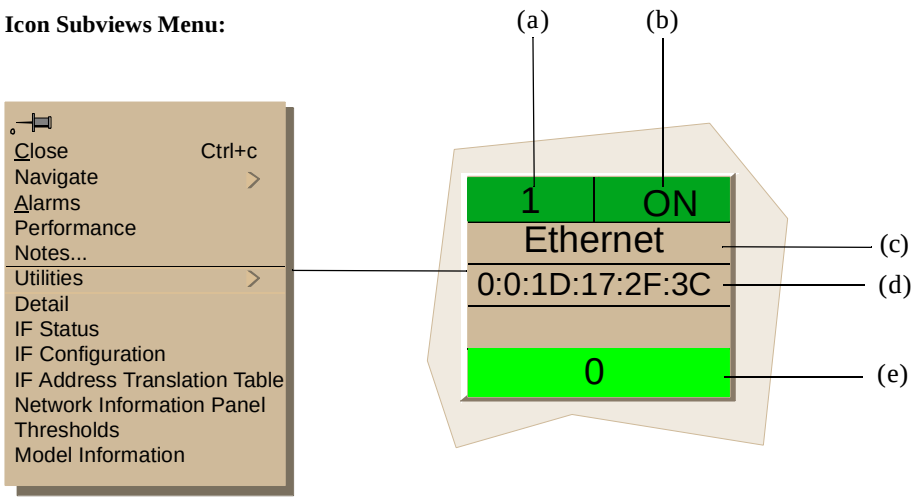
These icons represent the interfaces or ports of the device. The icons identify the type of interface or port and provide statistical information. Figure 2-3 shows an example of an interface icon, its Icon Subviews menu, and its labels/ double-click zones.

NOTE

The callouts (a through f) displayed in the illustration below identify the label and the view to which it provides double-click access. Example: Interface Type Label/Interface Configuration View displays the interface type and provides double-click access to the Interface Configuration view.

The menu displayed in the illustration is the Icon Subviews menu for that Interface icon.

Figure 2-3. Interface Icon



a. Interface Label

b. Administrative Status Label/Interface Status View

c. Interface Type Label/Interface Configuration View

d. MAC Address Label/Interface Address Translation Table

e. Gauge Label/Performance - CSIIfPort View

Interface Label

This label displays the number identifying this interface.

Administrative Status Label
This label displays the status of this interface (On or Off). Double-click this label to open the Interface Status view. The Interface Status view provides the following information:

Color	Status	Description
Green	ON	Port is operational.
Blue	OFF	Port is off.
Yellow	TST	Port is in the test mode.

Operational Status
Displays the current operational state of this interface. Possible states are:

- On
- Off
- TST

Administrative Status
This menu-button allows you to change the current administrative state of the port. Possible selections are:

- On (select this to enable the interface)
- Off (select this to disable the interface)
- Testing
- Default

Interface Type Label

This label displays the interface type. Double-click this label to open the *Interface Configuration View* described on Page 3-4.

MAC Address Label

This label displays the Media Access Control (MAC) or physical address of the interface. Double-click this label to open the Interface Address Translation Table, which cross-references device IP address to device MAC (Ethernet) addresses for selected nodes between networks. Double-click any table entry to access an address-specific information view.

Gauge Label

This label displays the performance statistic determined by the Gauge Control Panel for this interface. See *Gauge Control Panel* described earlier in this chapter for more information. Double-click this label to open the Performance view described in the ***SPECTRUM Views***.

Chapter 3

Configuration Views

What Is in This Chapter

This chapter describes the following Configuration views available for the FRX4000 and FRX6000 Netlink Frame Relay devices:

- *Device Configuration*
- *Interface Configuration*

These views display network configuration and operating status as well as network traffic flow.

See Chapter 1, *Introduction*, for information on *Accessing SPECTRUM Views*.

Device Configuration View

This view provides information on the configuration and operating status of the device. To access this view, double-click on the model name of the device icon, or do the following:

1. Highlight the device icon.
2. From the View menu, select **Icon Subviews -> Configuration**.

Device Configuration Information

This section of the Configuration view provides device-specific information.

Device Name
Displays the user-defined model name of the device.

Contact Status
Indicates if a connection with the device has been established.

Number of Interfaces
Displays the number of interfaces on the device.

Router Redundancy
This button gives you a choice of two options, True and False.

IF Address Translation

Accesses the Interface Address Translation Table, which cross-references device IP addresses to device MAC (Ethernet) addresses for selected nodes between networks.

Reconfigure

Allows you to reconfigure the table. Upon completion, a pop-up window appears stating that the action was successful. Click the **Close** button.

Interface Configuration Table

The Interface Configuration Table provides the following configuration information:

Index
Displays the number of the interface.

Description
Describes the interface.

Type
Displays the type of hardware interface for the port.

Bandwidth
Displays the estimated bandwidth of the interface, measured in bits per second. For interfaces that do not vary in bandwidth or for which no accurate estimate can be made, a nominal bandwidth displays.

Physical Address
Displays the Ethernet (MAC) address of the port.

Max Frame Size
Displays the maximum frame size.

Operation Status
Displays the current operational state of this port. Possible values are On, Off Test.

Admin Status
Displays the current administrative state of the port. Possible values are On, Off, or Test.

Last Change
Displays the time the last change to the device configuration occurred.

Queue Length
Displays the number of packets in the queue.

Packet Size
Displays the largest packet, measured in octets, that can be transmitted or received by the port.

Double-click any of the fields within this table to open the *Interface Configuration View* described below.

Interface Configuration View

To access this view from the Interface Device view, double-click the Interface Type Label of the icon, or do the following:

1. Highlight the Interface icon.
2. From the Icon Subviews menu, select **IF Configuration**.

You can also access this view from the Interface Configuration Table of the Device Configuration view. Double-click any of the fields within the table.

This view provides the following information:

Operation Status
Displays the current operating status of the port. Possible values are On, Off, or Test.

Admin Status
Provides a button that allows you to change the current administrative state of the port. Possible values are On, Off, or Testing.

Last Change
Displays the time the last change to the device configuration occurred.

Network Name/Address
Displays the network name and address connected to this interface.

Physical Address
Displays the physical (MAC) address of the port.

Bandwidth
Displays the estimated bandwidth of the interface measured in bits per second. For interfaces that do not vary in bandwidth or for which no accurate estimate can be made, a nominal bandwidth shows.

Packet Size
Displays the size of the packets being transmitted or received.

Queue Length
Displays the number of packets in the queue.

Chapter 4

Event and Alarm Messages

What Is in This Chapter

This chapter lists the types of events and alarms generated by the FRX4000 and FRX6000 Netlink Frame Relay devices and provides any probable cause messages corresponding to these alarms.

FRX4000 and FRX6000 Events and Alarms

Table 4-1 lists the SPECTRUM database directory paths (in bold) and the messages displayed for the Event Log and Alarm Manager when applicable.

Table 4-1. Events and Alarms

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event00010203 {d "%w- %d %m-, %Y - %T"} - The model created is not the same type as the device. Model type = {t}, Name = {m}, User = {u}. (event [{e}])	**CsPCause/Prob00010203** The model created is not the same type as the device.
CsEvFormat/Event00010306 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been cold started. (event [{e}])	**No probable cause message.**

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event00010307 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been warm started. (event [{e}])	**No probable cause message.**
CsEvFormat/Event00010308 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected a communication Link Down. (event [{e}])	**CsPCause/Prob00010308** Communication link is down.
CsEvFormat/Event00010309 {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected a communication Link Up. (event [{e}])	**No probable cause message.**
CsEvFormat/Event0001030a {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected an Authentication Failure. (event [{e}])	**CsPCause/Prob0001030a** Authorization failure. Other user is trying to connect to device with an invalid community string.
CsEvFormat/Event0001030b {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. EGP Neighbor IP address is {0 1}. (event [{e}])	**CsPCause/Prob0001030b** Lost contact with EGP neighbor.
CsEvFormat/Event00010401 {d "%w- %d %m-, %Y - %T"} - Device {m} of type {t} is created with an IP address already used by another model. (event [{e}])	**CsPCause/Prob00010401** DUPLICATE IP ADDRESS The model has the same IP address as that of some other model.
CsEvFormat/Event00010402 {d "%w- %d %m-, %Y - %T"} - Device {m} of type {t} is created with a physical (MAC) address already used by another model. (event [{e}])	**CsPCause/Prob00010402** DUPLICATE PHYSICAL ADDRESS The model has the same Physical address (MAC address) as that of some other model.

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event019d0001 {d "%w- %d %m-, %Y - %T"} - Device {m}, {0 5}, reports a temperature change to {T SMC_temperature 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0001** The device could be hotter or it could have dropped in temperature.
CsEvFormat/Event019d0004 {d "%w- %d %m-, %Y - %T"} - For device, {m}, the number of received packets lost because of insufficient buffers is {I 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0004** Received packets lost. Insufficient buffers.
CsEvFormat/Event019d0005 {d "%w- %d %m-, %Y - %T"} - For device, {m}, number of packets not sent because of a multicast storm is {I 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0005** Packets not sent. Multicast storm.
CsEvFormat/Event019d0006 {d "%w- %d %m-, %Y - %T"} - For device, {m}, the number of packets not received because of internal buffer congestion is {I 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0006** Packets not received. Internal buffer congestion.
CsEvFormat/Event019d0007 {d "%w- %d %m-, %Y - %T"} - For device, {m}, port, {I 5}, filtered and discarded a packet from MAC address {0 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0007** Filtered and discarded a packet. A port's combination filter has exceeded the filter's limits.
CsEvFormat/Event019d0008 {d "%w- %d %m-, %Y - %T"} - Debug string, {I 3} received from device, {m}: {0 5}.	**CsPCause/Prob019d0008** Debug string received from the device.

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event019d0009 {d "%w- %d %m-, %Y - %T"} - Device, {m}, has finished a loopback test or detected a loopback error. The current operational state is {T SMC_LoopBack 3}. Packets transmitted, but not received: {I 5}. Bad packets received: {I 7}. Trap severity is {T SMC_Severity 1}	**CsPCause/Prob019d0009** A loopback test was completed, or there is a loopback error.
CsEvFormat/Event019d0013 {d "%w- %d %m-, %Y - %T"} - Device, {m}, reports the trunking protocol error, {T SMC_TrunkError 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0013** An error has occured in trunking.
CsEvFormat/Event019d0016 {d "%w- %d %m-, %Y - %T"} - Device, {m}, has rebooted, because of a Fatal Error. The error information string is {0 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0016** Device rebooted because of a fatal error.
CsEvFormat/Event019d0017 {d "%w- %d %m-, %Y - %T"} - For device, {m}, the Configuration EEPROM has failed. The device can not be rebooted, and must be returned to the factory. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0017** The Configuration EEPROM has failed. The device can not be rebooted, and must be returned to the factory.
CsEvFormat/Event019d0018 {d "%w- %d %m-, %Y - %T"} - Device, {m}, has outbound congestion, and discarded {I 3} packets. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0018** Packets discarded, because of outbound congestion.
CsEvFormat/Event019d0021 {d "%w- %d %m-, %Y - %T"} - Device, {m}, reports the number of hardware errors in received and transmitted packets exceeds the port's limit. Discarded {I 3} received packets. Discarded {I 5} transmit packets. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0021** The number of hardware errors in received and transmitted packets has exceeded the port's limit.

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event019d0100 {d "%w- %d %m-, %Y - %T"} - For device, {m}, reports the diagnostic error, {0 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0100** **No probable cause message**.
CsEvFormat/Event019d0200 {d "%w- %d %m-, %Y - %T"} - A FDDI port on device, {m} of type {t} has detected an attachment configuration change. The new state is {T FDDISMTCFState3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0200** PROBABLE CAUSE: The FDDI MAC physical connection has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for current attachment state. 2) Check the A and B port connections. 3) Check the upstream and downstream devices.
CsEvFormat/Event019d0202 {d "%w- %d %m-, %Y - %T"} - The AC input for the first power supply on device, {m} of type {t} is {T SMC_Power 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0202** PROBABLE CAUSE: The AC input to the unit's first power supply has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for current AC input state. If AC input state is bad, 2) Check first power supply unit on device. 3) Check power source to device.
CsEvFormat/Event019d0203 {d "%w- %d %m-, %Y - %T"} - The AC input for the second power supply on device, {m} of type {t} is {T SMC_Power 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0203** PROBABLE CAUSE: The AC input to the unit's second power supply has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for current AC input state. If AC input is bad, 2) Check second power supply unit on device. 3) Check power source to device.

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event019d0204 {d "%w- %d %m-, %Y - %T"} - The DC output for the first power supply on device, {m} of type {t} is {T SMC_Power3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0204** PROBABLE CAUSE: The DC output of the unit's first power supply has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for current DC output state. If DC output state is bad, 2) Check first power supply unit on device. 3) Check power source to device.
CsEvFormat/Event019d0205 {d "%w- %d %m-, %Y - %T"} - The DC output for the second power supply on device, {m} of type {t} is {T SMC_Power 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0205** PROBABLE CAUSE: The DC output of the unit's second power supply has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for current DC output state. If DC output state is bad, 2) Check second power supply unit on device. 3) Check power source to the device.
CsEvFormat/Event019d0211 {d "%w- %d %m-, %Y - %T"} - The optical bypass for FDDI port {I 4} has become {T SMC_FddiSB 3} for device {m} of type {t}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0211** PROBABLE CAUSE: The FDDI port optical bypass has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for current optical bypass port state. 2) Check the optical bypass port.
CsEvFormat/Event019d0212 {d "%w- %d %m-, %Y - %T"} - The fuse to the optical bypass for the FDDI port {I 4} is {T SMC_FddiOBS 3} for device {m} of type {t}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0212** PROBABLE CAUSE: The state of the FDDI port optical bypass fuse has changed. RECOMMENDED ACTIONS: 1)Refer to Event log for current optical bypass fuse state.

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event019d0213 {d "%w- %d %m-, %Y - %T"} - The FDDI port's Station State for FDDI port {I 4} on device {m} of type {t} has changed to {0 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0213** PROBABLE CAUSE: The Station state of the FDDI port has changed. RECOMMENDED ACTIONS: 1) Refer to Event log for state infomation.
CsEvFormat/Event019d0214 {d "%w- %d %m-, %Y - %T"} - The actual line speed for WAN port {I 4} on device {m} of type {t} has changed to {T SMC_WanSpeed 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0214** PROBABLE CAUSE: The actual line speed of the WAN port has changed. RECOMMENDED ACTIONS: 1) Refer to the Event log for line speed information.
CsEvFormat/Event019d0216 {d "%w- %d %m-, %Y - %T"} - A module in device, {m} of type {t}, has malfunctioned, causing a Fatal Error. The error information string is: {0 3}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0216** PROBABLE CAUSE: A module has failed. RECOMMENDED ACTIONS: 1) Refer to Event log for status information. 2) Check module configuration.
CsEvFormat/Event019d0217 {d "%w- %d %m-, %Y - %T"} - A module in device, {m} of type {t}, has failed diagnostics. The diagnostic status is: {T SMC_DiagStatus 3}. Additional diagnostic code information is: {1 5}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0217** PROBABLE CAUSE: A module has failed diagnostics. RECOMMENDED ACTIONS: 1) Refer to Event log for status information. 2) Check module configuration.
CsEvFormat/Event019d0218 {d "%w- %d %m-, %Y - %T"} - Module {I 4} of type {T SMC_hwType 3}, does not match it's defined type of {T SMC_hwType 5} in device {m} of type {t}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0218** PROBABLE CAUSE: A module does not match its defined type. RECOMMENDED ACTIONS: 1) Refer to Event log for module information. 2) Check slot configuration.

Table 4-1. Events and Alarms (Continued)

Message in the Event Log	Alarm View Probable Cause Message
CsEvFormat/Event019d0219 {d "%w- %d %m-, %Y - %T"} - A port module {I 4} of type {0 3}, does not match it's defined type of {0 5} in device {m} of type {t}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0219** PROBABLE CAUSE: A port does not match its defined type. RECOMMENDED ACTIONS: 1) Refer to Event log for port information. 2) Check module and slot configuration.
CsEvFormat/Event019d0220 {d "%w- %d %m-, %Y - %T"} - A port on a module {1 4} of type {0 3}, has a bad port status in device {m} of type {t}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0220** PROBABLE CAUSE: A port on this module has a bad port status. RECOMMENDED ACTIONS: 1) Refer to Event log for port information. 2) Check cable connections.
CsEvFormat/Event019d0221 {d "%w- %d %m-, %Y - %T"} - A Duplicate MAC Address has been detected on FDDI ring attached to device {m} of type {t}. Trap severity is {T SMC_Severity 1}.	**CsPCause/Prob019d0221** PROBABLE CAUSE: Two or more stations with the same MAC address were detected on the network. RECOMMENDED ACTIONS: MAC address must be unique on the network. 1) Locate the offending stations and change the adaptor cards.

Chapter 5

Application View

What Is in This Chapter

This chapter describes the Netlink Application (Netlink App) for the FRX4000 and FRX6000 Netlink Frame Relay devices and the subviews available for this application.

Common Applications

This device supports the following common applications described in the ***Bridging Applicaitons, MIB-II Applications, or Miscellaneous Applicaitons*** documentation:

- GenBridge (Gen_Bridge_App)
  - Spanning Tree (Span_Tree_App)
  - Static (Static_App)
  - Transparent (Transparnt_App)
- MIB-II (SNMP2_Agent)
  - ICMP (ICMP_App)
  - IP (IP2_App)
  - System (System2_App)
  - UDP (UDP2_App)
- Ethernet (EthernetApp)
  - EthernetIfApp_01 through _26 (EthernetIfApp) - depending upon the device
- Token Ring Application (Token Ring App)
  - TRIfApp_01 through _26 (TRIfApp) - depending upon the device
- FrameRelay Application (FrmRly App)

The FRX4000 and FRX6000 also support the following major applications:

- Routing Services
- Standard RMON (RMONApp)

You can purchase SPECTRUM management of these applications separately. Refer to the documentation provided with the purchased applications.

Device Application View

This view shows the common and device-specific applications supported by the FRX4000 and FRX6000 Netlink Frame Relay devices and provides access to application-specific information.

See Chapter 1, *Introduction*, for information on *Accessing SPECTRUM Views*.

Figure 5-2 shows an example of an Application view in the icon mode.

Figure 5-2 shows an example of an Application view in the list mode.

To change the display mode, from the View menu, select **Mode -> List** or **Icon**.

Figure 5-1. Device Application View (Icon Mode)

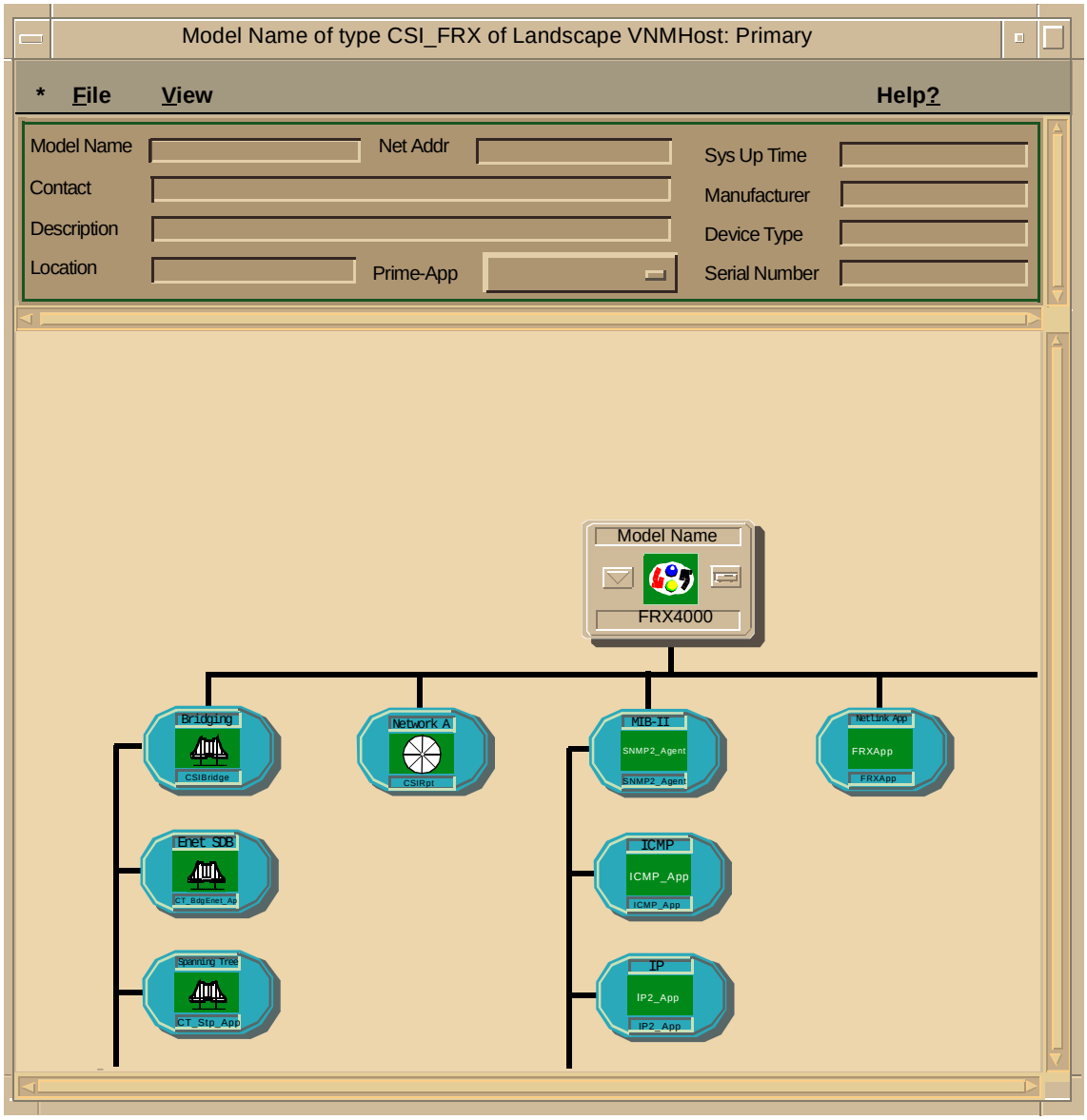
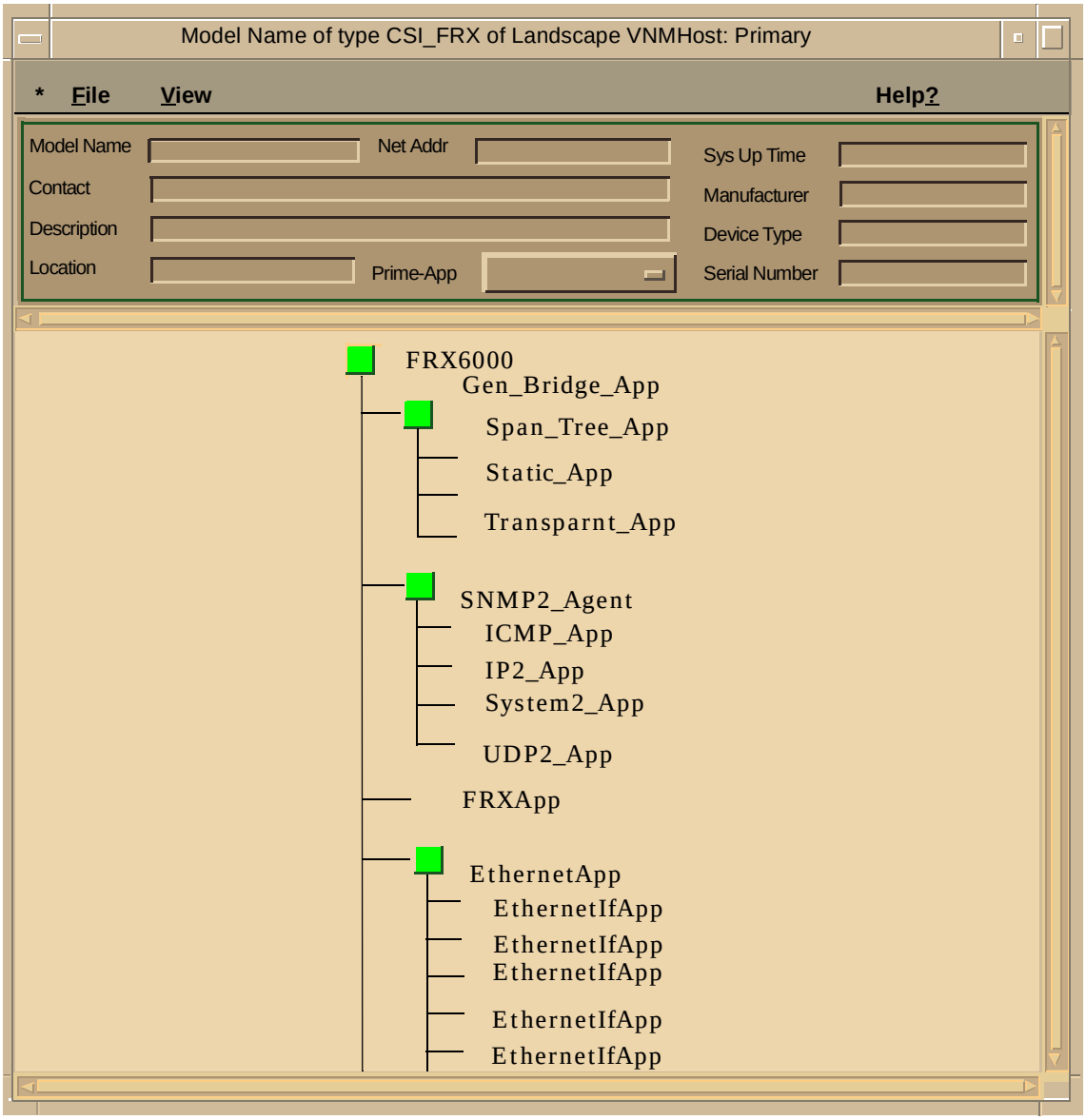


Figure 5-2. Device Application View (List Mode)



Netlink Application

This section describes the Netlink Application supported by the device. The model type for this application is FRXApp. The following views are available from the Icon Subviews menu for this application:

Netlink RLP ConfigurationView

This view displays the following information for each RLP on the node:

RLP
The RLP number on the node.

LIC 1
The Type of Line Interface card in the first position.

LIC 2
The Type of Line Interface card in the first position.

Memory
The amount of memory installed on this RLP.

Status
The current state of this RLP.

Protocols
The protocols configured on this RLP. This is an octet string where each octet represents a protocol type. The size of this is the maximum number of protocols allowed on an RLP.
The protocol types are defined as:

- 00 = none
- 01 = X.25
- 02 = Frame Relay
- 03 = Async
- 04 = SDLC
- 05 = BSC Interactive
- 07 = IP
- 08 = SNMP
- 09 = RIP
- 0A = LLC2
- 0B = Trunk
- 0C = IPX
- 0D = Config
- 0E = LLC2-R
- 0F = IP-R
- 10 = NVSP
- 11 = Bridge

Netlink Trap Address Table

This table view defines the IP address of end-nodes to receive alarms generated by this node. Up to 16 addresses can be specified. This table view displays the following information:

Index
The index into the trap table.

Address
The IP address of the end-station to send alarms.

Flag
Defines the status of this entry as:

- Disable
- Enable

Severity
Lowest severity level traps that will be sent to this Address.

Index

A

Accessing
- Device-specific Subviews 1-4
- Icon Subviews Menu 1-4, 1-5
- Views
  - Using Double-click Zones 1-3
  - Using Icon Subviews Menu 1-4

Address
- Ethernet 3-3
- MAC 2-8, 2-9, 3-3
- Network 2-3
- Physical 3-3

Admin Status 3-4
Alarm
- Messages 4-1

Apply Button 2-7
Attribute
- Selected 2-5

B

Bridging Application 5-1
Button
- Apply 2-7
- Close 2-7
- Default 2-7
- Keep Settings 2-7
- Reset 2-7
- Standard Table
  - Find 1-5
  - Print 1-6
  - Sort 1-5
  - Update 1-5

C

Configuration View
- Device 3-2

Contact
- Status 3-2

Conventions x
CSIIfPort
- Configuration 3-4

D

Default 2-7
Device 5-3, 5-4
- Configuration 3-1
- Topology 2-9

Device Application view
- List mode 5-3, 5-4

Device Configuration View 3-2
Device-specific Subviews 1-4
Double-click zones 1-3

E

Ethernet
- Address 3-3

Ethernet Application 5-1
Event
- Messages 4-1

F

FNB
- Configuration View 3-4

Frame Size
- Maximum 3-3

FrameRelay Application 5-1
FrmRly App 5-1
FRX4000 and FRX6000 Devices 1-1

G

Gauge 2-8
  Control Panel 2-4
  Mode 2-5
  Type 2-6
Gauge Control Panel
  Gauge Mode
    Rates Gauge Mode 2-6
    Totals Gauge Mode 2-6
  Gauge Mode - Rates
    Color 2-6
    Selected Attribute 2-6
  Gauge Mode - Totals
    Color 2-6
    Selected Attribute 2-6
Gauge Mode
  Rates Gauge Mode 2-6
  Totals Gauge Mode 2-6
Getting Help xi

I

ICMP_App 5-1
Icon Subviews Menu
  Accessing 1-4
  Accessing from View Menu 1-4
  Accessing Views 1-4
  Accessing with Mouse 1-5
Index 3-3
Interface
  Configuration Table 3-3
  Description 2-3
  Icon 2-8
  Number 2-8, 2-9
  Percentages 2-5
Introduction
  Roadmap of SPECTRUM Views 1-6
  SPECTRUM Support
    Accessing Device-Specific Subviews 1-4
    Accessing SPECTRUM Views from the Device Icon 1-4
    Using Standard Table Buttons 1-5
IP Application 5-1
IP2_App 5-1

L

List Mode 5-3, 5-4

M

MAC Address 2-9
MAC Address Label 2-8
Mask
  Network 2-3
Maximum
  Frame Size 3-3
MIB-II Application 5-1
Mode
  Gauge 2-5
  List 5-3, 5-4
Model Information View 2-9

N

Name
  Network 2-3
Netlink Application 5-5
Network
  Information 2-3
Notice i

O

Operation Status 3-4
Operational Status 3-3

P

Physical
  Address 3-3
Port
  Configuration
    View 2-9, 3-4
  Type 2-9

R

Rates 2-5
Rates Gauge Mode 2-6
Related Reading x, xi
Restricted Rights Notice ii
RMON 5-2
Roadmap 1-6
    SPECTRUM
        Roadmap of Views 1-7
Roadmap of SPECTRUM Views 1-6

S

SNMP2_Agent 5-1
Spanning Tree Bridging 5-1
SPECTRUM
    Portable Management Application 1-6
    Roadmap of Views 1-6
    views
        roadmap 1-7
SPECTRUM Support
    Accessing Device-Specific Subviews 1-4
    Accessing SPECTRUM Views from the
            Device Icon 1-4
    Using Standard Table Buttons 1-5
Standard Table Buttons 1-5
Static Bridging 5-1
Static_App 5-1
Status
    Administrative 2-8
    Adminstrative 2-9
System2_App 5-1

T

TCP/IP Based Networks xi
Terminology x
Token Ring App 5-1
Token Ring Application 5-1
Totals 2-5
Totals Gauge Mode 2-6
Trademarks i
Transparent Bridging 5-1
Transparnt_App 5-1
TRIfApp 5-1
Type 3-3

U

UDP
    Application 5-1
UDP2_App 5-1
Using Standard Table Buttons 1-5

V

View
    Device Application
        List Mode 5-3, 5-4
Virus Disclaimer i